

CLAIMS

What is claimed is:

1. A structure configured to disconnect circuit elements, comprising:
 - a) a conductive structure with first and second circuit elements electrically coupled thereto, said first conductive structure absorbing a first wavelength of light with a minimum threshold efficiency;
 - b) a first dielectric layer over said conductive structure, said dielectric layer being substantially transparent to said first wavelength of light; and
 - c) a first lens over both said first dielectric layer and said conductive structure, said first lens being substantially opaque to said first wavelength of light and being configured to at least partially focus light having said first wavelength onto said conductive structure.
2. The structure of Claim 1, further comprising a second dielectric layer on or over said lens, said second dielectric layer being substantially transparent to said first wavelength of light.
3. The structure of Claim 1, wherein said lens comprises a fresnel lens.
4. The structure of Claim 1, wherein said lens comprises a central element and a first peripheral element adjacent to said central element.
5. The structure of Claim 4, wherein said first peripheral element surrounds said central element.
6. The structure of Claim 4, wherein said lens comprises a first plurality of peripheral elements adjacent to said central element.

7. The structure of Claim 6, wherein said first plurality of peripheral elements comprises first and second peripheral elements adjacent to opposed surfaces of said central element.
8. The structure of Claim 6, wherein said first plurality of peripheral elements have common, substantially equal dimensions and are substantially equally spaced apart from a nearest peripheral element.
9. The structure of Claim 8, wherein said first plurality of peripheral elements are further substantially equally spaced apart from said central element. .
10. The structure of Claim 4, wherein said central element is larger than each of said first peripheral element along at least one dimension.
11. The structure of Claim 6, further comprising a second plurality of peripheral elements adjacent to said first plurality of peripheral elements.
12. The structure of Claim 1, further comprising a second lens under said first lens and over said conductive structure, said second lens being substantially opaque to said first wavelength of light and being configured to (i) receive said at least partially focused light from said first lens and (ii) further focus said light onto said conductive structure.
13. The structure of Claim 12, wherein said conductive structure comprises silicon.
14. The structure of Claim 1, wherein said conductive structure comprises a first metal or alloy.

15. The structure of Claim 14, wherein said first lens comprises a second metal or alloy, said second metal or alloy being the same as or different from said first metal or alloy.
16. The structure of Claim 15, wherein said conductive structure comprises a bulk layer consisting essentially of said first metal or alloy and an upper layer consisting essentially of a third metal or alloy, said third metal or alloy absorbing said first wavelength of light at a greater efficiency than said first metal or alloy, and said second metal or alloy is the same as said first metal or alloy.
17. The fuse of Claim 1, wherein said conductive structure is substantially horizontal.
18. An integrated circuit, comprising:
 - a) a first structure according to Claim 1; and
 - b) a first circuit in electrical communication with said first structure and comprising one of said first and second circuit elements, configured to be disabled when said first conductive structure is electrically disconnected.
19. The integrated circuit of Claim 18, wherein said first circuit in electrical communication with said first structure comprises a row, column or block of memory.
20. The integrated circuit of Claim 18, further comprising:
 - a) a second structure configured to disconnect third and fourth circuit elements, substantially identical to said first structure, and
 - b) a second circuit in electrical communication with said second fuse and comprising one of said third and fourth circuit elements, configured to be enabled when said second fuse is electrically disconnected.

21. The integrated circuit of Claim 20, wherein said second circuit provides a function that said first circuit is designed to provide.
22. The integrated circuit of Claim 18, wherein said integrated circuit does not include a guard ring around said fuse.
23. A structure configured to disconnect circuit elements, comprising:
 - a) means for electrically disconnecting first and second circuit elements, said means for electrically disconnecting absorbing a first wavelength of light with a minimum threshold efficiency;
 - b) a first means for insulating said means for electrically disconnecting, said means for insulating being substantially transparent to said first wavelength of light; and
 - c) a first means for at least partially focusing light having said first wavelength onto said means for electrically disconnecting, said means for at least partially focusing light being substantially opaque to said first wavelength of light.
24. The structure of Claim 23, further comprising a second means for insulating said first means for at least partially focusing light, said second means for insulating being substantially transparent to said first wavelength of light.
25. The structure of Claim 23, wherein said first means for at least partially focusing light comprises a lens.
26. The structure of Claim 25, wherein said lens comprises a fresnel lens.
27. The structure of Claim 23, further comprising a second means for at least partially focusing light having said first wavelength onto said means for electrically disconnecting, said second means for at least partially focusing light being (i) configured to receive said

at least partially focused light from said first means for at least partially focusing light and
(ii) substantially opaque to said first wavelength of light.

28. The structure of Claim 27, wherein said means for electrically disconnecting comprises silicon.
29. The structure of Claim 23, wherein said means for electrically disconnecting comprises a first metal or alloy.
30. The structure of Claim 29, wherein said first means for at least partially focusing light comprises a second metal or alloy, said second metal or alloy being the same as or different from said first metal or alloy.
31. The structure of Claim 30, wherein said means for electrically disconnecting comprises a bulk layer consisting essentially of said first metal or alloy and an upper layer consisting essentially of a third metal or alloy, said third metal or alloy absorbing said first wavelength of light at a greater efficiency than said first metal or alloy, and said second metal or alloy is the same as said first metal or alloy.
32. An integrated circuit, comprising:
 - a) a first structure according to Claim 23; and
 - b) a first circuit in electrical communication with said first fuse and comprising one of said first and second circuit elements, configured to be disabled when said first fuse is electrically disconnected.
33. The integrated circuit of Claim 32, wherein said first circuit comprises a means for storing data.

34. The integrated circuit of Claim 32, further comprising:
 - a) a second structure configured to disconnect third and fourth circuit elements substantially identical to said first structure, and
 - b) a second circuit in electrical communication with said second structure and comprising one of said third and fourth circuit elements, configured to be enabled when said second fuse is electrically disconnected.
35. The integrated circuit of Claim 34, wherein said second circuit comprises a means for providing an electrical function that said first circuit is designed to provide.
36. The integrated circuit of Claim 32, wherein said integrated circuit does not include a means for protecting other circuitry in said integrated circuit from exposure to potential sources of damage or contamination after said fuse is irradiated.
37. A method of making a structure configured to disconnect circuit elements, comprising the steps of:
 - a) forming a conductive structure electrically coupled to first and second circuit elements, said first conductive structure absorbing a first wavelength of light with a minimum threshold efficiency;
 - b) forming a first dielectric layer thereover, said first dielectric layer being substantially transparent to said first wavelength of light; and
 - c) forming a first lens on or over said first dielectric layer, and over said conductive structure, said first lens being substantially opaque to said first wavelength of light and being configured to at least partially focus light having said first wavelength onto said conductive structure.
38. The method of Claim 37, further comprising the step of forming said first and second circuit elements before forming said conductive structure.

39. The method of Claim 38, further comprising the step of forming electrical contacts to said first and second circuit elements before forming said conductive structure.
40. The method of Claim 37, wherein the step of forming said conductive structure further comprises simultaneously forming a first plurality of conductive structures.
41. The method of Claim 37, wherein the step of forming said first lens further comprises simultaneously forming a second plurality of conductive structures.
42. The method of Claim 37, further comprising the steps of:
 - a) forming a second dielectric layer on or over said first lens, and
 - b) forming a second lens over said second dielectric layer, said second lens being substantially opaque to said first wavelength of light and being configured to at least partially focus light having said first wavelength onto said first lens.
43. A method of (re)configuring a circuit, comprising the steps of:
 - a) irradiating at least one first lens on or near a surface of said circuit sufficient to electrically disconnect a corresponding first fuse and disable a first configuration of said circuit; and
 - b) irradiating at least one second lens on or near said surface of said circuit sufficient to electrically disconnect a corresponding second fuse and enable a second configuration of said circuit,

wherein each of said first and second lenses are substantially opaque to a first wavelength of light and are configured to at least partially focus light having said first wavelength onto said corresponding fuses, and each of said first and second fuses are electrically coupled to corresponding first and second circuit elements and are configured to absorb said first wavelength of light with a minimum threshold efficiency.

44. The method of Claim 43, further comprising irradiating a plurality of first lenses sufficient to electrically disconnect a corresponding plurality of first fuses and disable said first configuration of said circuit.
45. The method of Claim 43, further comprising irradiating a plurality of second lenses sufficient to electrically disconnect a corresponding plurality of second fuses and enable said second configuration of said circuit.
46. The method of Claim 43, wherein said circuit is contained within an integrated circuit.